

Discussion paper for electricity settlement expert group – settlement timetable

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Audience: Electricity settlement expert group and other interested stakeholders

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1. Purpose of the paper

- 1.01 As part of the Smarter Markets Programme, Ofgem has convened an expert group to support its work to examine how consumers can be settled against their half-hourly (HH) consumption data. One of the areas under consideration is the timetable for settlement.
- 1.02 ELEXON is progressing a project with the Profiling and Settlement Review Group (PSRG) to reduce the settlement timetable.¹ This project has a different scope to Ofgem's work under the Smarter Markets Programme. ELEXON and the PSRG are considering options for implementation in the short to medium term during the roll-out of smart meters. Ofgem is examining longer-term changes to the timetable for settlement.
- 1.03 It is important that Ofgem's project takes account of the work of ELEXON and the PSRG work. To this end, Ofgem has asked ELEXON to identify and assess options relating to the settlement timetable in the longer term as an input to its work under the Smarter Markets Programme.
- 1.04 This paper sets out Ofgem's and ELEXON's initial views on the options for the settlement timetable for discussion at the expert group meeting on 16 June 2014. It draws on ELEXON's recent consultation issued to inform its project and discussions at the PSRG.²
- 1.05 This paper considers the options at a high level. We want to explore with the expert group the potential range of options for changing the settlement timetable in the context of settling consumers against their HH consumption data. At this stage, we do not place values on the options, in the sense of proposing the number of days after real time that settlement runs should occur. We plan to do so for the second meeting of the expert group drawing on the discussion at the first meeting.
- 1.06 We are seeking views from the expert group on the following questions:
 - Are there other viable options for reform that should be considered?
 - Are there links to other market arrangements that should be considered?
 - Do you have any comments on our initial assessment of the options?
 - Are there any other issues that need to be considered in relation to the settlement timetable?
- 1.07 In addition, we are keen to explore with the expert group the errors in consumption data that may arise if consumers are settled against their HH consumption data. We also want to understand the incentives on suppliers to address these errors and the activities involved. Further detail is provided in paragraph 4.14.

¹ The PSRG reports to the Balancing and Settlement Code Panel and is tasked with maintaining the integrity of the settlement process in the short to medium term as smart meters are rolled out.

² *Reducing settlement timescales*, ELEXON, April 2014. Available on ELEXON's website here: <http://www.elexon.co.uk/about/insights-consultations-cpcs/consultations/>

2. Structure of the paper

2.01 This paper contains the following sections:

- Section 3 – explains why we are exploring the options for reforming the settlement timetable
- Section 4 – describes the options we have developed
- Section 5 – sets out our next steps.
- Annex – describes the settlement timetable and other background information relevant to this paper.

3. Description of the issue

- 3.01 As set out in the Balancing and Settlement Code (BSC), the settlement process charges suppliers for any difference between the volume of energy that they buy and the amount that their customers consume in each half hour of the day (called a 'settlement period'). As well as charges for imbalance, settlement also calculates other charges that suppliers pay in respect of activities defined in the BSC. Collectively, these are known as Trading Charges.
- 3.02 Generators are also subject to Trading Charges calculated through settlement. In this paper, we focus on suppliers. However, we recognise that any changes to the settlement timetable may also have implications for generators that will need to be considered.
- 3.03 The process of invoicing for Trading Charges is repeated at set intervals called runs. At any run, this consists of the 48 settlement periods in a single day. These runs and their approximate timings are set out in the Annex to this paper, along with other background information relevant to the settlement timetable.
- 3.04 The current settlement timetable has implications for the costs suppliers incur in operating in the market, as summarised below:
- The BSC requires suppliers to put up sufficient collateral to cover the Trading Charges they have incurred but are not yet due to pay. The period of liabilities that Parties need to cover is determined by the timing of the first settlement run, and is on average 29 calendar days. On 28 May this year the total collateral lodged by the industry for BSC requirements was £364 million. We understand from stakeholders that suppliers typically put up significantly more collateral than they are required to do by the BSC.
 - At each run, new consumption data is used to recalculate Trading Charges. As a result, suppliers will see fluctuations in these charges. Suppliers set aside capital to cover the risk of such fluctuations until at least the last scheduled settlement run, which falls around 14 months after the settlement day.
 - Settlement data is used to determine other charges that suppliers pay. Some of these charges are not finalised until the last scheduled settlement run. As with Trading Charges, suppliers will set aside capital until these charges are finalised.
- 3.05 The costs that suppliers incur are ultimately borne by consumers. Moreover, these costs can affect competition by tying up capital that could be used for innovation or to improve customer service and by increasing the cash reserves new entrants require.
- 3.06 The ability to read smart meters remotely enables the settlement timetable to be streamlined and shortened. This could reduce the collateral that suppliers put up with ELEXON and the amount of capital set aside to cover fluctuations in Trading Charges and other charges over time. Consumers could benefit from lower bills, better customer service, innovation in products and services, and stronger competition.
- 3.07 Stakeholders have also told us that it is important to consider the settlement timetable in examining how consumers can be settled against their HH data. This is because the timetable to some extent drives how often suppliers retrieve consumption data from the meter and the time available to address errors. Errors in consumption data occur for a variety of reasons, for example if a meter is not recording consumption properly or because of mistakes in processing meter readings for settlement.

4. Options for the settlement timetable

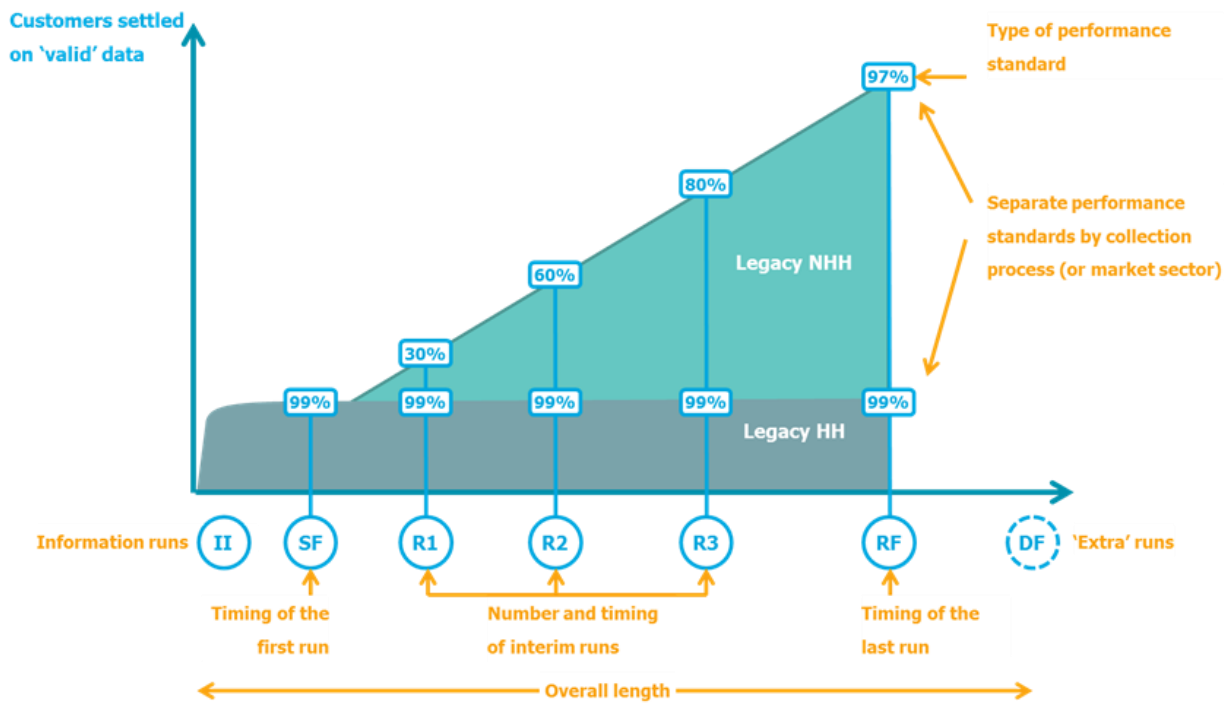
- 4.01 To develop the options, we identified the aspects of the existing rules relating to the settlement timetable that can be varied. These are shown in Figure 1 and are:
- whether to have an information run and if so when it should fall

- the timing of the first and last settlement runs
- whether to have interim runs between the first and last settlement runs and if so when these should fall
- whether to allow an extra settlement run after the last settlement run and if so when is the latest this should fall
- the type of performance standards that should be used.

4.02 For each of the variables identified, we considered its purpose and identified and assessed the high-level options for reform (assuming that all other variables remain unchanged).

4.03 This section sets out our thinking on each variable. We recognise that the implications for market operation of changing the settlement timetable cannot be fully understood by considering each variable in isolation. However, given the very large number of possible combinations, we believe that our approach will help to develop a suitable range of packages of options for assessment.

Figure 1 – aspects of the settlement timetable that can be varied



4.2 Information run

4.04 At an information run, Trading Charges are calculated but suppliers are not invoiced and do not receive data on their customers' consumption as determined through settlement from ELEXON central systems.

4.05 At present, the information run takes place within one week of the settlement day. It serves two purposes:

- to allow identification of any issues with the metered energy flowing into each Grid Supply Point (GSP) Group (called the GSP Group Take)³

³ A GSP is a point of connection from the electricity transmission system to a distribution network, large power station or non-embedded consumer. These are grouped into GSP Groups for settlement purposes. The settlement process allocates all energy entering each GSP Group to suppliers, based on the consumption of their customers and adjustments for losses and errors. Therefore, it is important that information on energy flowing into each GSP Group is accurate.

- to provide metered data for the purposes of calculating the amount of collateral that suppliers put up with ELEXON to cover for the Trading Charges they have incurred but not yet paid.

4.06 At a high level, there are three options for reform: bring forward the information run; move it later; or remove it. These options could impact on:

- **Credit calculation.** Removing or moving back the information run would increase the number of days for which metered data is not available in calculating the amount of collateral that suppliers put up to cover unpaid Trading Charges. Where metered data is not available, the calculation uses estimates. This is less accurate, which means the collateral put up by suppliers is less likely to reflect their Trading Charges in the first settlement run. Bringing forward the information run would have the opposite effect.
- **Accuracy of Trading Charges at the first settlement run.** Moving back the information run would give more time to address any errors in GSP Group Take. We also understand that suppliers seek to address significant errors based on the information they receive at the information run, for example if Trading Charges are unexpectedly large. Allowing more time to address these errors would increase the accuracy of Trading Charges when they are first paid, which in turn would decrease fluctuations in them at subsequent reconciliation runs. Bringing forward or removing the information run would have the opposite effect.
- **Administration costs.** Removing the information run would simplify the arrangements to the extent that there is one less run. However, the administrative burden of the information run is small because it is performed centrally and no output on consumption is sent to suppliers by ELEXON central systems.

4.07 We also note that releasing consumption data for the information run to suppliers could potentially benefit forecasting provided the data was of sufficient accuracy. This is because suppliers would have access to a more recent view of the consumption data they will be settled against.

4.3 The first settlement run

4.08 At the first settlement run, suppliers are invoiced for Trading Charges. They also receive information from ELEXON central systems on their customers' consumption for the first time. This data can be used for demand forecasting. Suppliers can also identify errors in consumption data for the settlement day.

4.09 At present, the first settlement run falls 29 calendar days after the settlement day. During discussions at the PSRG, some suppliers argued that the period between the settlement day and the first settlement run gives sufficient time for them to collect some revenue from their customers for the purposes of paying imbalance charges. However, others suggested that imbalance charges are a comparatively small component of a supplier's costs such that paying them is not dependent on billing customers.

4.10 At a high level, there are two options for reform: bring forward the first settlement run; or move it later. These options could impact on:

- **Credit calculation.** Bringing forward the first settlement run would reduce the number of days for which suppliers have incurred but not yet paid Trading Charges. This should reduce the amount of collateral that they put up with ELEXON. Moving back the first settlement run would have the opposite effect.
- **Demand forecasting.** Bringing forward the first settlement run will provide suppliers with earlier information on their customers' consumption, which can help to make demand forecasting more accurate. This is dependent upon suppliers using consumption information from the first settlement run for forecasting purposes and this information being of sufficient accuracy.⁴ If suppliers can forecast more accurately, their purchases will more closely match the amount of energy that their

⁴ We understand from discussions at the PSRG that not all suppliers use consumption information from the first settlement run for forecasting purposes.

customers use in each settlement period. This would reduce the extent to which suppliers as a group are in imbalance, which in turn could reduce the number of balancing actions that the System Operator needs to take.⁵ Consumers would benefit where it is cheaper for suppliers to contract forward for energy as a result of more accurate forecasting compared to the costs of balancing actions taken by the System Operator.

- **Demand-side response.** Where suppliers or other market participants rely on settlement data to validate demand-side response actions, bringing forward the first settlement run should allow consumers to receive payment sooner. This could make demand-side response a more attractive proposition to consumers, increasing participation and hence delivery of benefits from lower bills, stronger security of supply and connection of low-carbon generation.
- **Accuracy of Trading Charges at the first settlement run.** Bringing forward the first settlement run could reduce the quality of consumption data used for invoicing Trading Charges. This is because there would be less time to retrieve consumption data and address any errors, which could mean that more estimates are used. As a result, Trading Charges at the first settlement run may be less accurate. This could lead to greater changes in Trading Charges at later settlement runs and hence more risk for suppliers that they will need to mitigate by setting aside capital. Moving back the first settlement run could have the opposite effect.
- **Accuracy of other charges that rely on information from the first settlement run.** Some other charges that suppliers pay rely on consumption data from the first settlement run. For example, initial charges for using the distribution network rely on data from this run. Bringing forward the first settlement run could allow these charges to be paid sooner, but as explained above could also reduce their accuracy.

4.4 The last settlement run

4.11 The last settlement run is the final scheduled run. At present, this falls around 14 months after the settlement day. Originally, the rationale for this gap was to allow enough time to read each meter at least once and to address any errors in consumption data.

4.12 The roll-out of smart metering presents an opportunity to significantly shorten the settlement timetable by bringing forward the last settlement run. We do not consider that our work should investigate options for moving back this run. The PSRG also took this view in discussing options for shortening the settlement timetable in the short to medium term.

4.13 Bringing forward the last settlement run could impact on:

- **Certainty of Trading Charges.** Suppliers would have certainty sooner on their Trading Charges. This could reduce the amount of capital that they set aside to cover the risk of fluctuations in Trading Charges and other charges over time. As described above, these costs are ultimately borne by consumers.
- **Processes for managing data quality.** The closer the last settlement run falls to the settlement day, the less time suppliers have to identify and address errors in consumption data. This could increase their costs of managing data quality.
- **Accuracy of Trading Charges.** Errors in consumption data may not be addressed by the last settlement run. Suppliers may set aside capital to cover this risk. Moreover, they may also raise more Trading Disputes after the last settlement run to correct errors. (For an explanation of Trading Disputes, please see the annex to this paper). ELEXON and suppliers incur costs in managing Trading Disputes. Moreover, they create uncertainty because Trading Charges may continue to change after the last settlement run. Again, suppliers will set aside capital to mitigate this risk

⁵ Suppliers and other market participants have incentives to balance their positions. National Grid Electricity Transmission, in its role as System Operator, is responsible for managing any residual difference between supply and demand.

4.14 In identifying the options for bringing forward the last settlement run, it is important to allow sufficient time to identify and address errors in consumption data in a cost-effective way. We are keen to explore with the expert group: the types of errors that may occur if all consumers are settled against their HH consumption data; the steps required to resolve such errors and the costs involved; how the costs may change depending on when the last settlement run falls. We are also keen to understand the incentives on suppliers to take steps to correct errors in consumption data before the last settlement run. We will be seeking views at the first expert group meeting.

4.5 Interim settlement runs

4.15 At present, there are three interim settlement runs between the first and last settlement runs. These serve different purposes:

- The first interim run falls around two months after the settlement day. It allows Trading Charges to quickly reflect errors identified in the first settlement run.
- The second interim run falls around four months after the settlement day. This run aligns with the collection of meter readings on a quarterly basis.
- The third interim run falls around seven months after the settlement day. Its purpose is to allow errors to be addressed without waiting until the last settlement run.

4.16 At a high level, there are four options for reform:

- remove scheduled interim runs
- remove scheduled interim runs but allow for ad hoc runs when defined triggers are met
- reduce the number of scheduled interim runs
- increase the number of scheduled interim runs.

4.17 These options could impact on:

- **Administration costs.** Suppliers incur costs in retrieving, preparing and submitting consumption data to settlement for each interim run. Removing interim runs or reducing their number would reduce these costs. Increasing the number of interim runs would have the opposite effect.
- **Accuracy of Trading Charges over time.** Removing or reducing the number of interim runs may mean that suppliers wait longer to see changes in their Trading Charges where errors in consumption data are identified and addressed. As a result, the risk of fluctuations in Trading Charges over time may increase. As discussed above, suppliers mitigate this risk by setting aside capital. Moreover, suppliers may be less likely to identify errors before the last settlement run. Again, suppliers may set aside capital to cover this risk or raise Trading Disputes. Increasing the number of interim runs would have the opposite effects.

4.18 The merits of having interim settlement runs, and if so how many, will depend in part on the timing of the first and last settlement runs. The longer the distance between the two, the stronger the argument for having interim runs.

4.6 Extra settlement runs

4.19 Extra settlement runs provide an opportunity to resolve errors in consumption data in a transparent way after the last settlement run. At present, the BSC allows an extra settlement run to be undertaken to resolve upheld Trading Disputes up to 14 months after the last settlement run.

- 4.20 The options for reform are: to remove the option to hold extra settlement runs; or to bring forward the deadline for undertaking extra settlement runs. These options could impact on:
- **Administration costs.** ELEXON and suppliers incur costs in undertaking extra settlement runs. Removing the option to undertake such runs would bring down their costs.
 - **Certainty of Trading Charges.** Removing the option to undertake extra settlement runs after the last settlement run would give earlier certainty to suppliers on Trading Charges. This could reduce the capital they set aside to cover changes in Trading Charges over time. Bringing forward the deadline for undertaking extra settlement runs would have the same impact, but to a lesser extent.
 - **Accuracy of Trading Charges.** Removing the option to undertake extra settlement runs would provide stronger incentives on suppliers to correct errors sooner. However, there may be instances where suppliers cannot correct errors. They may set aside capital to cover this risk, the costs of which are borne by consumers. Bringing forward the deadline for the extra settlement run would have the same impact, but to a lesser extent.
- 4.21 The need for extra settlement runs is linked to the timing of the last settlement run, which sets the time period that suppliers have to correct errors without raising a Trading Dispute. As discussed above, we are keen to explore the errors that may arise if consumers are settled against their HH consumption data and the actions required to address these errors.
- 4.22 The impact of the options for reform described above cannot be fully understood without reference to the Extra Settlement Determination process. This process provides a second way of resolving Trading Disputes. If the option to undertake an extra settlement run was removed, or if the deadline was brought forward, more Extra Settlement Determinations may be undertaken. This could offset the cost savings ELEXON and suppliers could make from undertaking fewer extra settlement runs. Moreover, there is no deadline for Extra Settlement Determinations. This could offset some of the benefits from earlier certainty on Trading Charges identified above. We will consider how our options interact with the Extra Settlement Determination process.

4.7 Performance standards

- 4.23 Performance standards provide assurance that data in settlement is of sufficient quality. Suppliers face charges if they do not meet certain performance standards. The key standard is the percentage of energy settled on actual data rather than estimates. The current standards are listed in the annex to this paper.
- 4.24 At a high level, the options for reform are:
- to change the volume of energy that must be settled on actual consumption data at relevant runs
 - to change how performance is measured.
- 4.25 Focusing first on changing the volume of energy that is settled on actual consumption data, setting higher standards at earlier runs could reduce fluctuations in Trading Charges over time. However, it may also increase the costs that suppliers incur in identifying and addressing errors.
- 4.26 With regard to how performance is measured, options might include:
- distinguishing between 'valid' and 'invalid' estimates
 - setting standards by market sector.
- 4.27 With regard to former, we note that at present the volume of energy settled on actual meter readings for HH sites declines over time. This is because at later settlement runs suppliers identify that actual consumption data is not of sufficient quality and hence use estimates instead. Therefore, performance is seen to deteriorate over time even though the quality of data used in settlement improves.

- 4.28 To address this issue, performance standards could distinguish between 'valid' and 'invalid' estimates. The former would apply when estimates have been deliberately used because they are more accurate than actual consumption data. The latter would apply when suppliers have not obtained actual consumption data. This approach would give a better indication of data quality in the market and create stronger incentives to replace actual data with estimates where appropriate.
- 4.29 It is also possible to set different standards for different market sectors. This could give better insight into the cause of any performance issues, but would also add complexity.

5. Next steps

- 5.01 At the expert group meeting, ELEXON will present the work set out in this paper for comment. Drawing on the comments received, at the second expert group meeting ELEXON will present packages for reform. This will include placing values on each of the variables, as described in paragraph 1.05.

6. Annex - Background

6.01 Below we describe the arrangements set out in the BSC relating to:

- the timetable for settlement runs
- the performance standards that define the proportion of energy that is settled on actual data at each settlement run
- the lodging of collateral with ELEXON to cover an estimate of Trading Charges up to the Settlement Final run.

6.2 Settlement timetable

6.02 The settlement process is repeated at set intervals called runs. Table 1 describes each settlement run.

Table 1 – settlement timetable

Run	Approximate timing	Description
Interim information run (II)	Within one week	The Trading Charges calculated at this run are for information only. Parties will not be invoiced.
Settlement Final (SF)	1 month	At SF, parties make and receive Trading Charge payments for a settlement day for the first time.
First Reconciliation Run (R1)	2 months	These runs repeat processes performed for the first settlement run using the latest available consumption data.
Second Reconciliation Run (R2)	4 months	
Third Reconciliation Run (R3)	7 months	
Final Reconciliation Run (RF)	14 months	This is the final scheduled run for a settlement day and uses the latest available consumption data.

6.03 The BSC also includes a mechanism called the Trading Disputes process for correcting errors that affect Trading Charges. This includes errors relating to settlement periods for which RF has taken place. In such circumstances, errors can be corrected in two ways:

- Undertake another settlement run (called a Post-Final Settlement Run (DF)). This can take place at any time after RF, up to 28 months after the relevant settlement day. In practice, the DF run calendar is agreed in advance and set to 28 months. There can only be one DF Run in respect of a Settlement Day.
- Carrying out an Extra-Settlement Determination (ESD). This calculates the impact of an error on Trading Charges and invoices parties on that basis without changing settlement data. There is no limit on when an ESD can be processed.

6.3 Performance standards

6.04 Under the BSC, suppliers are required to meet performance standards to maintain the integrity of settlement. These standards set the proportion of energy that must be settled on actual data for a given settlement run.

6.05 Performance standards differ by three market sectors:

- non-half-hourly (NHH) sites settled based on estimates of consumption in each half hour

- sites that must be settled HH because their average maximum demand exceeds 100kW in circumstances defined by the BSC
- sites that have elected to be settled HH.

6.06 Table 2 shows the performance standards by market sector. Suppliers face financial penalties if they fail to meet some of the standards. These standards are marked with an asterisk in Table 2.

Table 2 – performance standards

Run	NHH standard	Mandatory HH standard	Elective HH standard
SF	-	99%*	-
R1	30%	99%*	-
R2	60%	99%	-
R3	80%*	99%	-
RF	97%*	99%	99%*

6.4 Credit arrangements

6.07 After a settlement day, Trading Charges are paid for the first time around 29 calendar days later. Suppliers and generators put up collateral with ELEXON to cover an estimate of their Trading Charges over this period. This is to ensure that, should any party default, sufficient collateral is available to pay any debts they have incurred.

6.08 The credit cover calculation uses data on metered volumes from the II run where available. Where II run data is not yet available, contractual positions are compared with an estimate of likely metered volumes. This second method is less accurate than using metered data.